REMARKS

Claims 1-65 are pending in the application. Claims 1-5, 9-11, 14, 15, 17-21, 25, 30-33, 36-41, and 43-65 were rejected, and the remaining claims were objected to. Claims 10-12, 14-15, 21, 30-31, 44-47, 49-50, and 54-65 have been amended herein. Accordingly, claims 1-65 remain active in the application. In view of the claim amendments and the following remarks, Applicant respectfully requests reconsideration of the application.

Claims Both Allowed and Rejected

Claims 39 and 40 were identified as rejected in paragraphs 34 and 35 of the Office Action. Claims 39 and 40 were also identified as allowable in paragraph 39. Applicant has addressed these claims below as if they were rejected.

Claim Rejections – U.S.C. § 112

Claims 10 and 11 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Applicant has amended these claims to correct the antecedent basis problem identified by the Examiner. A similar problem was found and corrected in claim 12 as well. A typographical error in identifying the parent claim was identified and corrected in claim 21.

Claim Rejections – U.S.C. § 103

Claims 1, 2, 5, 14, 15, 17, 18, 21, 30-33, 37, 41, 45-51, and 54-65 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Minami, U.S. Patent No. 4,815,143 ("Minami"), in view of Weinstein et al. IEEE SAC-1 No. 6, ("Weinstein"). Applicant respectfully traverses this rejection as Minami in combination with Weinstein fails to teach all elements of any rejected claim as presently amended, and therefore fails to present a *prima facie* case of obviousness.

Claim 1 is drawn to a packet voice conferencing method. Claim 1 includes, among other features, *estimating the relative temporal delay between the first and second sound field signals within the approximate timeframe of the first time period.* Neither Minami nor Weinstein teaches or suggests estimating the delay between first and second sound field signals within the approximate timeframe of a first time period. Instead, Minami uses a free-running adaptive filter to *transform* the sampled right-channel signal into an estimate of the left channel signal. Minami's "approximator" 30, which the rejection asserts meets the claim

limitation, merely replicates a truncated section of the adaptive filter tap weightings, and performs no estimation of relative temporal delay. (see Fig. 5 for output of the "approximator".) The fact that Minami teaches transmitting adaptive filter tap weightings emphasizes that Minami relies on a method that differs significantly from estimating delay and transmitting a stereo decoding parameter based on that estimated delay, as claimed.

Claims 2-16 are directly or indirectly dependent on claim 1, and for at least the reasons given for claim 1, these claims are believed to be allowable over the cited references. The Examiner has already indicated allowbility of claims 6-8, 12, 13, and 16. In addition, claim 5 recites "the relative temporal delay associated with the first time period is estimated using substantially only the sound field signals captured during the first time period." The Examiner asserts that Minami "discloses the main data voice signal synchronized with the additional data... (column 7, lines 7-12)." The portion of Minami referred to describes "the main data voice signal $X_R(k)$ is delayed by the delay circuit 29R by 200 msec so as to be synchronized with the additional data." (col. 7, lines 10-12). This is because in Minami "the additional data is updated 200 msec after the actual change in the speakers." (col. 7, lines 9-10). To Applicant's reading, this is not *estimating relative temporal delay* by using the sound field signals captured during *the first time period*, rather it is a simple fixed synchronization delay to cure the delay that results from the device itself. Further, Minami's free-running adaptive filter has no way to consider only sound field signals captured in a signal block during a first time period—its coefficients are based in part on all samples it has previously considered.

The Examiner rejected claims 14 and 15, asserting that by transmitting a transfer function, the transmitted data "inherently includes relative amplitude (i.e., a stereo balance parameter)" and "inherently includes estimating signal energy in subbands." Claims 14 and 15 have been amended to clarify what was meant: that the claimed transmitted parameter is an explicit parameter, not a transfer function that is used directly to obtain one channel from the other. That Minami's transfer function may theoretically contain information from which such explicit parameters could be derived, if such is even true, does not teach or suggest obtaining such explicit parameters from the transfer function (as presumably Minami would have to do) and transmitting them instead of the transfer function.

Claim 17, 32, and 37 are patentable for the same reasons as claim 1. Claims 18-31 directly or indirectly depend from claim 17, and for at least the reasons given for claim 1, these claims are believed to be allowable over the cited references. The Examiner has already indicated the allowability of claims 22-24, 26-29, 34, 35, and 42. In addition, claim

21 is patentable for the same reasons as claim 5. Claims 30 and 31, including their clarifying amendments, are patentable for the same reasons as claims 14 and 15.

Claims 33-36 directly or indirectly depend from claim 32, and for at least the reasons given for claim 32, these claims are believed to be allowable over the cited references.

Claims 38-46 directly or indirectly depend from claim 37, and for at least the reasons given for claim 37, these claims are believed to be allowable over the cited references. Claims 45 and 46, including their clarifying amendments, are patentable for the same reasons as claims 14 and 15.

The rejection of independent claims 47, 54, 58, and 62 asserts that the filter tap coefficients taught by Minami are a stereo decoding parameter. These claims have been amended to clarify that the stereo decoding parameter comprises at least one of an explicit delay parameter, an explicit balance parameter, and an explicit arrival angle parameter. That Minami's transfer function may theoretically contain information from which such explicit parameters could be derived, if such is even true, does not teach or suggest obtaining such explicit parameters from the transfer function (as presumably Minami would have to do) and using them *instead of* the transfer function to produce sound channels. Accordingly, Minami's filter cannot operate as the claimed splitter (or similar language in other claims) that operates on the value of an explicit stereo decoding parameter.

As an example that the difference between an explicit parameter and a transfer function is more than just semantics (and bandwidth), Minami's transfer function can at best replicate the microphone spacing at the transmit end—which is only correct if the speakers at the receive end have the same spacing as the microphones. Applicant's explicit parameters, however, can be divorced from the microphone setup by the splitter, for instance "an arrival-angle-based stereo decoding parameter may be more useful when the decoder has no knowledge of the microphone configuration..." (Specification, page 8, lines 7-9.)

The explicit parameters have also been recited in claims depending from claims 47, 54, 58, and 62 that recited parameters. Applicant respectfully submits that all claims depending from these four independent claims are patentable at least for the same reasons as the independent claims from which they depend.

Claims 3, 4, 9, 19, 20, 25, 36, 38-40, 43, and 44 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Minami in view of Weinstein and further in view of Coker et al., U.S. Patent No. 4,581,758 ("Coker"). Applicants respectfully traverse this rejection as the combination of references fails to teach all elements of any rejected claim.

Claims 3, 4, and 9 are directly or indirectly dependent on claim 1, and for at least the reasons given for claim 1, these claims are believed to be allowable over the cited references. Claims 19, 20, and 25 are directly or indirectly dependent on claim 17, and for at least the reasons given for claim 17, these claims are believed to be allowable over the cited references. Similarly, claims 36, 38-40, and 43-44 are believed to be allowable over the cited references for at least the reasons given for the independent claims from which they depend.

Further, the Examiner asserts that "Coker discloses sound source location by cross correlating two microphone inputs over a series of time intervals ... and selecting the delay with the greatest correlation." Applicant respectfully disagrees, as Coker does not calculate a "first-to-second sound field signal cross-correlation coefficient" as claimed. Instead, Coker creates a "stream of pulses" corresponding to "pitch peaks," and correlates the "pitch peaks." (See Coker Figure 9, where "pitch peaks" are called "events," Figures 10 and 11, which show how "pitch peaks" are produced by Coker's analog circuitry, and Figure 12, which shows how the "pitch peak" correlation is accumulated in a histogram. Accordingly, Coker fails to suggest cross-correlating the sound field signals.

In addition, claim 4 recites "*tracking the beginning and ending of a talkspurt* represented in the sound field signals, and limiting the variation of the estimated relative temporal delay during a talkspurt." The Examiner asserts Coker "teaches deriving delay from energy burst pulses in response to speech sounds... (column 3, line 66 through column 4, line 10)." The portion of Coker referred to describes "transforming pitch peaks in the speech envelope into energy burst coincident pulses." (col. 3, line 67 through col. 4, line 1). In turn, in Coker, this would help to distinguish between noise and speech sounds. (col. 4, lines 1-4). This is clearly not *tracking the beginning and ending of a talkspurt* and *limiting the variation of the estimated relative temporal delay during a talkspurt*. In fact, the portion of a single talkspurt in Coker Figure 10 produces multiple pitch peaks in Figure 11, and so cannot track the beginning and ending of a talkspurt as claimed.

Claims 19 and 20 are patentable, respectively, for similar reasons as claims 3 and 4 are patentable. Claim 36 is patentable for similar reasons as claim 19 is patentable.

Claim 38 recites, among other features, "the packet formatter using the voice activity detection signal to inhibit packet generation when voice activity is not present." All of the cited references are silent on this feature. Further, as explained above, Coker's "pitch peak" detection is not voice activity detection, but detection of high-energy locations in the received sound field.

Claims 39 and 40 directly and indirectly depend from claim 38, and for at least the reasons given for claim 38, these claims are believed to be allowable over the cited references.

Claims 52 and 53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Minami in view of Weinstein and further in view of McClennon et al. U.S. Patent No. 6,408,327 ("McClennon"). Applicants respectfully submit that the cited references fail to create a *prima facie* case of obviousness for any of these claims.

Claims 52 and 53 are directly or indirectly dependent on claim 47 and for at least the reasons given for claim 47, these claims are believed to be allowable over the cited references.

Allowable Subject Matter

Claims 6-18, 10-13, 16, 22-24, 26-29, 34, 35, 39, 40, and 42 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants acknowledge the indication of patentable subject matter in these claims. Because Applicants have traversed the rejection of the base claims, however, the objected-to claims have not been rewritten at this time.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-65 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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